

Jiten J. Mlachak
 Tel# (603) 262-5355
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74/728,543

Examiner's Notes

9 (single or mono) (102) (crystal?)
 15 (superalloy)
 15 (high? low power or high?) (8a) (energ?)
 15 (preheat?) (8a) (melt#)
 15 (solid#)
 15 (filler#)

11272 Rej:

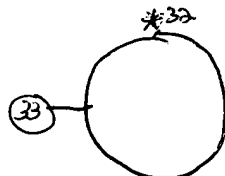
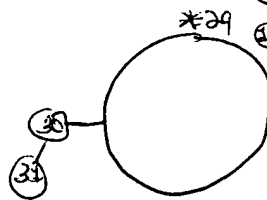
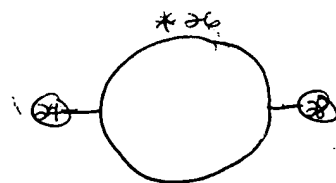
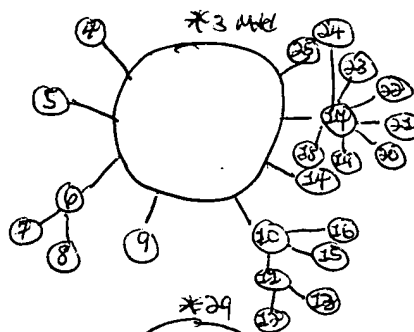
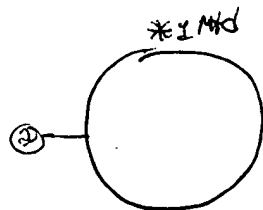
claim 4, lines 6-7, "... RENE' NS and No..." (Trademark Cite)

claim 6, lines 16-17, "... HASTELLOY X, INCO 743..." (Trademark Cite)

claim 32, lines 15, 16, 21-22 "... SC 180, RENE' NS ... MAR-M247..." (TRADEMARK CITE)

Allowable Subject Matter:

claims 32 and 33 are allowed



103 Rej:

claims 1-31

Search History

STN

(HEARUS, JPRD, USPTAU, INPADOC, INXPEC)

3/13/2006

=> d-18 1-4 abs, bib

L8 ANSWER 1 OF 4 USPATFULL on STN

AB Methods for repair of **single crystal superalloys** by laser welding and products thereof have been disclosed. The laser welding process may be hand held or automated. Laser types include: CO.sub.2, Nd:YAG, diode and fiber lasers. Parameters for operating the laser process are disclosed. Filler materials, which may be either wire or powder **superalloys** are used to weld at least one portion of a **single crystal superalloy** substrate.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2005:141214 USPATFULL

TI Methods for repair of **single crystal superalloys** by laser welding and products thereof

IN Hu, Yiping, Greer, SC, UNITED STATES
Hehmann, William F., Greer, SC, UNITED STATES
Madhava, Murali, Gilbert, AZ, UNITED STATES

PI US 2005120941 A1 20050609
AI US 2003-728543 A1 20031209 (10)

DT Utility

FS APPLICATION

LREP Honeywell International Inc., 101 Columbia Rd., P. O. Box 2245,
Morristown, NJ, 07962-9806, US

CLMN Number of Claims: 33

ECL Exemplary Claim: 1

DRWN 3 Drawing Page(s)

LN.CNT 578

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 2 OF 4 USPATFULL on STN

AB A thermally diluted exothermic reactor system is comprised of numerous orifices distributed within a combustor by distributed perforated contactor tubes or ducts. The perforated contactors deliver and mix diluent fluid and one or more reactant fluids with an oxidant fluid. Numerous micro-jets about the perforated tubes deliver, mix and control the composition of reactant fluid, oxidant fluid and diluent fluid. The reactor controls one or more of composition profiles, composition ratio profiles and temperature profiles in one or more of the axial direction and one or two transverse directions, reduces temperature gradients and improves power, efficiency and emissions.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2004:279779 USPATFULL

TI Trifluid reactor

IN Hagen, David L., Goshen, IN, UNITED STATES
Ginter, Gary, Chicago, IL, UNITED STATES
Goheen, Bill, Goshen, IN, UNITED STATES
McGuire, Allan, Elkhart, IN, UNITED STATES
Rankin, Janet, Shawano, WI, UNITED STATES

PI US 2004219079 A1 20041104
AI US 2004-763047 A1 20040122 (10)

PRAI US 2003-442096P 20030122 (60)
US 2003-442844P 20030124 (60)

DT Utility

FS APPLICATION

LREP KNOBBE MARTENS OLSON & BEAR LLP, 2040 MAIN STREET, FOURTEENTH FLOOR,
IRVINE, CA, 92614

CLMN Number of Claims: 84

ECL Exemplary Claim: 1

DRWN 31 Drawing Page(s)

LN.CNT 11328

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 3 OF 4 USPATFULL on STN

AB In a method of making a load-bearing article by spray casting a molten metal onto a metal substrate, the substrate surface receiving the spray

cast deposit is treated by vacuum cleaning, boronizing and/or knurling to enhance the structural integrity of the diffusion bond joint subsequently formed between the spray cast deposit and the substrate in sustaining a load across the joint without premature joint failure.

AN 94:48406 USPATFULL
TI Method of enhancing bond joint structural integrity of spray cast article
IN Stinson, Jonathan S., Plymouth, MN, United States
Bowen, Kim E., Whitehall, MI, United States
PA Howmet Corporation, Greenwich, CT, United States (U.S. corporation)
PI US 5318217 19940607
AI US 1991-794320 19911114 (7)
RLI Continuation of Ser. No. US 1989-452958, filed on 19 Dec 1989, now abandoned
DT Utility
FS Granted
EXNAM Primary Examiner: Nelson, Peter A.
LREP Flynn, Thiel, Boutell & Tanis
CLMN Number of Claims: 37
ECL Exemplary Claim: 1
DRWN 9 Drawing Figure(s); 4 Drawing Page(s)
LN.CNT 1283

L8 ANSWER 4 OF 4 USPATFULL on STN
AB The invention consists of a method of producing a fine equiaxed grain structure (ASTM 2-4) in cast nickel-base **superalloys** which increases low cycle fatigue lives without detrimental effects on stress rupture properties to temperatures as high as 1800° F. These **superalloys** are variations of the basic nickel-chromium matrix, hardened by gamma prime [Ni.sub.3 (Al, Ti)] but with optional additions of cobalt, tungsten, molybdenum, vanadium, columbium, tantalum, boron, zirconium, carbon and hafnium. The invention grain refines these alloys to ASTM 2 to 4 increasing low cycle fatigue life by a factor of 2 to 5 (i.e. life of 700 hours would be increased to 1400 to 3500 hours for a given stress) as a result of the addition of 0.01% to 0.2% of a member of the group consisting of boron, zirconium and mixtures thereof to aid heterogeneous nucleation. The alloy is vacuum melted and heated to 250°-400° F. above the melting temperature, cooled to partial solidification, thus resulting in said heterogeneous nucleation and fine grains, then reheated and cast at about 50°-100° F. of superheat. Additions of 0.1% boron and 0.1% zirconium (optional) are the preferred nucleating agents.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 78:13981 USPATFULL
TI Method of improving fatigue life of cast nickel based **superalloys** and composition
IN Denzine, Allen F., Chardon, OH, United States
Kolakowski, Thomas A., Cleveland, OH, United States
Wallace, John F., Shaker Heights, OH, United States
PA University Patents, Inc., Stamford, CT, United States (U.S. corporation)
PI US 4078951 19780314
AI US 1976-672350 19760331 (5)
DT Utility
FS Granted
EXNAM Primary Examiner: Dean, R.
LREP Fay & Sharpe
CLMN Number of Claims: 16
ECL Exemplary Claim: 13
DRWN No Drawings
LN.CNT 1320

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> d his

FILE 'HCAPLUS, INSPEC, JAPIO, USPATFULL, USPAT2, INPADOC' ENTERED AT
09:35:14 ON 13 MAR 2006

L1 544003 S (SINGLE OR MONO) (10A) (CRYSTAL?)
L2 34095 S (SUPERALLOY#)
L3 663364 S (HIGH? (4A) POWER# OR HIGH?) (8A) (ENERG?)
L4 7038 S (PREHEAT?) (8A) (MELT# OR LIQUID#)
L5 3406730 S (SOLID#)
L6 494583 S (FILLER#)
L7 1 S L1 AND L2 AND L3 AND L4 AND L5 AND L6
L8 4 S L1 AND L2 AND L3 AND L4

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=> d his

Search History

(FILE 'HOME' ENTERED AT 09:34:38 ON 13 MAR 2006)

FILE 'HCAPLUS, INSPEC, JAPIO, USPATFULL, USPAT2, INPADOC' ENTERED AT
09:35:14 ON 13 MAR 2006

L1 544003 S (SINGLE OR MONO) (10A) (CRYSTAL?)
L2 34095 S (SUPERALLOY#)
L3 663364 S (HIGH? (4A) POWER# OR HIGH?) (8A) (ENERG?)
L4 7038 S (PREHEAT?) (8A) (MELT# OR LIQUID#)
L5 3406730 S (SOLID#)
L6 494583 S (FILLER#)

=> s l1 and l2 and l3 and l4 and l5 and l6

L7 1 L1 AND L2 AND L3 AND L4 AND L5 AND L6

=> d l7 abs,bib

L7 ANSWER 1 OF 1 USPATFULL on STN

AB Methods for repair of **single crystal**

superalloys by laser welding and products thereof have been disclosed. The laser welding process may be hand held or automated. Laser types include: CO.sub.2, Nd:YAG, diode and fiber lasers. Parameters for operating the laser process are disclosed. **Filler** materials, which may be either wire or powder **superalloys** are used to weld at least one portion of a **single crystal superalloy** substrate.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2005:141214 USPATFULL

TI Methods for repair of **single crystal**

superalloys by laser welding and products thereof

IN Hu, Yiping, Greer, SC, UNITED STATES

Hehmann, William F., Greer, SC, UNITED STATES

Madhava, Murali, Gilbert, AZ, UNITED STATES

PI US 2005120941 A1 20050609

AI US 2003-728543 A1 20031204 (10)

DT Utility

FS APPLICATION

LREP Honeywell International Inc., 101 Columbia Rd., P. O. Box 2245,

Morristown, NJ, 07962-9806, US

CLMN Number of Claims: 33

ECL Exemplary Claim: 1

DRWN 3 Drawing Page(s)

LN.CNT 578

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

Day : Monday
Date: 3/13/2006


PALM INTRANET

Time: 09:41:29

Inventor Name Search Result

Your Search was:

Last Name = HU

First Name = YIPING

| Application# | Patent# | Status | Date Filed | Title | Inventor Name |
|-------------------|------------|------------------------------------|------------|--------------------------------------------------------------------------------------------------|---------------|
| <u>10665028</u> | Not Issued | 41 | 09/16/2003 | Coaxial nozzle design for laser cladding/welding process | HU, YIPING |
| * <u>10728543</u> | Not Issued | 30 <i>Applicants' Invention</i> | 12/04/2003 | Methods for repair of single crystal superalloys by laser welding and products thereof | HU, YIPING |
| <u>10746388</u> | Not Issued | 60 | 12/24/2003 | High-strength superalloy joining method for repairing turbine blades | HU, YIPING |
| <u>10792003</u> | Not Issued | 71 | 03/02/2004 | Modified MCrAlY coatings on turbine blade tips with improved durability | HU, YIPING |
| <u>10794207</u> | 6972390 | 150 | 03/04/2004 | MULTI-LASER BEAM WELDING HIGH STRENGTH SUPERALLOYS | HU, YIPING |
| <u>10806727</u> | 6905728 | 150 | 03/22/2004 | COLD GAS-DYNAMIC SPRAY REPAIR ON GAS TURBINE ENGINE COMPONENTS | HU, YIPING |
| <u>10819816</u> | Not Issued | 71 | 04/06/2004 | Cold gas-dynamic spraying of wear resistant alloys on turbine blades | HU, YIPING |
| <u>10930506</u> | Not Issued | 71 | 08/30/2004 | Method for repairing titanium alloy components | HU, YIPING |
| <u>10936925</u> | Not Issued | 61 | 09/08/2004 | Methods for applying abrasive and environment-resistant coatings onto turbine components | HU, YIPING |
| <u>11013218</u> | Not Issued | 71 | 12/14/2004 | Method for applying environmental-resistant MCrAlY coatings on gas turbine components | HU, YIPING |
| <u>11093334</u> | Not Issued | 30 | 03/29/2005 | Environment-resistant platinum aluminide coatings, and methods of applying the same onto turbine | HU, YIPING |

| | | | | | |
|-----------------|------------|-----|------------|----------------------------------------------------------------------------------------|---------------|
| | | | | components | |
| <u>11093350</u> | Not Issued | 30 | 03/29/2005 | Repair nickel-based superalloy and methods for refurbishment of gas turbine components | HU, YIPING |
| <u>11093583</u> | Not Issued | 30 | 03/29/2005 | Nickel-based superalloy and methods for repairing gas turbine components | HU, YIPING |
| <u>11238383</u> | Not Issued | 30 | 09/28/2005 | Method for repairing die cast dies | HU, YIPING |
| <u>11280106</u> | Not Issued | 25 | 11/15/2005 | Method for repairing gas turbine engine compressor components | HU, YIPING |
| <u>11336305</u> | Not Issued | 20 | 01/18/2006 | Activated diffusion brazing alloys and repair process | HU, YIPING |
| <u>60376265</u> | Not Issued | 159 | 04/30/2002 | Nickel-base superalloy powders | HU, YIPING |
| <u>10049994</u> | Not Issued | 161 | 02/18/2002 | Gene cloning | HUANG, YIPING |
| <u>10794929</u> | Not Issued | 30 | 03/05/2004 | Gene cloning | HUANG, YIPING |
| <u>60149759</u> | Not Issued | 159 | 08/19/1999 | NOVEL CELL CULTURES FOR DRUG DISCOVERY AND SCREENING | HUANG, YIPING |
| <u>60149788</u> | Not Issued | 159 | 08/19/1999 | PRIMERS AND PROBES FOR GENE DISCOVERY AND CLONING | HUANG, YIPING |

Inventor Search Completed: No Records to Display.

| | | | |
|---------------------------------|---------------------------------|-------------------------------------|---------------------------------------|
| | Last Name | First Name | |
| Search Another: Inventor | <input type="text" value="Hu"/> | <input type="text" value="Yiping"/> | <input type="button" value="Search"/> |

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Day : Monday
Date: 3/13/2006

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Time: 09:41:56

Inventor Name Search Result

Your Search was:

Last Name = HEHMANN

First Name = WILLIAM

| Application# | Patent# | Status | Date Filed | Title | Inventor Name |
|-------------------|------------|------------------------------------|------------|----------------------------------------------------------------------------------------|---------------------|
| <u>10632451</u> | Not Issued | 164 | 07/31/2003 | 3-D ADAPTIVE LASER POWDER FUSION WELDING | HEHMANN, WILLIAM |
| <u>10071025</u> | 6593540 | 150 | 02/08/2002 | HAND HELD POWDER-FED LASER FUSION WELDING TORCH | HEHMANN, WILLIAM F. |
| <u>10190150</u> | 6968991 | 150 | 07/03/2002 | DIFFUSION BOND MIXTURE FOR HEALING SINGLE CRYSTAL ALLOYS | HEHMANN, WILLIAM F. |
| <u>10206411</u> | 6894247 | 150 | 07/26/2002 | POWDER FEED SPLITTER FOR HAND-HELD LASER POWDER FUSION WELDING TORCH | HEHMANN, WILLIAM F. |
| <u>10460008</u> | 6774338 | 150 | 06/12/2003 | HAND HELD POWDER-FED LASER FUSION WELDING TORCH | HEHMANN, WILLIAM F. |
| <u>10713759</u> | Not Issued | 95 | 11/13/2003 | HAND-HELD LASER WELDING WAND FILLER MEDIA DELIVERY SYSTEMS AND METHODS | HEHMANN, WILLIAM F. |
| <u>10721632</u> | 7012216 | 150 | 11/24/2003 | HAND-HELD LASER WELDING WAND HAVING INTERNAL COOLANT AND GAS DELIVERY CONDUITS | HEHMANN, WILLIAM F. |
| * <u>10728543</u> | Not Issued | 30 <i>Applicants' Invention</i> | 12/04/2003 | Methods for repair of single crystal superalloys by laser welding and products thereof | HEHMANN, WILLIAM F. |
| <u>10789854</u> | Not Issued | 30 | 02/26/2004 | Hand held powder-fed laser fusion welding torch | HEHMANN, WILLIAM F. |
| <u>10792003</u> | Not Issued | 71 | 03/02/2004 | Modified MCrAlY coatings on turbine blade tips with improved durability | HEHMANN, WILLIAM F. |
| <u>10794207</u> | 6972390 | 150 | 03/04/2004 | MULTI-LASER BEAM | HEHMANN, |

| | | | | | |
|-----------------|---------------|----|------------|---------------------------------------------------------------------------------------------------|------------------------|
| | | | | WELDING HIGH STRENGTH SUPERALLOYS | WILLIAM F. |
| <u>10929071</u> | Not Issued | 30 | 08/27/2004 | Repair of turbines on wing | HEHMANN, WILLIAM F. |
| <u>10936925</u> | Not Issued | 61 | 09/08/2004 | Methods for applying abrasive and environment-resistant coatings onto turbine components | HEHMANN, WILLIAM F. |
| <u>11055924</u> | Not Issued | 20 | 02/11/2005 | Mobile hand-held laser welding support system | HEHMANN, WILLIAM F. |
| <u>11238383</u> | Not Issued | 30 | 09/28/2005 | Method for repairing die cast dies | HEHMANN, WILLIAM F. |
| <u>11280106</u> | Not Issued | 25 | 11/15/2005 | Method for repairing gas turbine engine compressor components | HEHMANN, WILLIAM F. |

Inventor Search Completed: No Records to Display.

| | | | |
|---------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|
| | Last Name | First Name | |
| Search Another: Inventor | <input type="text" value="Hehmann"/> | <input type="text" value="William"/> | <input type="button" value="Search"/> |

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Day : Monday
Date: 3/13/2006


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Time: 09:42:11

Inventor Name Search Result

Your Search was:

Last Name = MADHAVA

First Name = MURALI

| Application# | Patent# | Status | Date Filed | Title | Inventor Name |
|--------------|------------|-----------------------------------|------------|--------------------------------------------------------------------------------------------------------|--------------------|
| *10728543 | Not Issued | 30 <i>Applicants Invention</i> | 12/04/2003 | Methods for repair of single crystal superalloys by laser welding and products thereof | MADHAVA, MURALI |
| 10806727 | 6905728 | 150 | 03/22/2004 | COLD GAS-DYNAMIC SPRAY REPAIR ON GAS TURBINE ENGINE COMPONENTS | MADHAVA, MURALI |
| 10819816 | Not Issued | 71 | 04/06/2004 | Cold gas-dynamic spraying of wear resistant alloys on turbine blades | MADHAVA, MURALI |
| 10836791 | Not Issued | 30 | 04/30/2004 | Chromium diffusion coatings | MADHAVA, MURALI |
| 10854985 | Not Issued | 30 | 05/26/2004 | Active elements modified chromium diffusion patch coating | MADHAVA, MURALI |
| 10928545 | Not Issued | 71 | 08/26/2004 | Chromium and active elements modified platinum aluminide coatings | MADHAVA, MURALI |
| 60376265 | Not Issued | 159 | 04/30/2002 | Nickel-base superalloy powders | MADHAVA, MURALI |
| 09996533 | 6645926 | 150 | 11/28/2001 | FLUORIDE CLEANING MASKING SYSTEM | MADHAVA, MURALI N. |
| 10976749 | Not Issued | 61 | 10/29/2004 | Aluminum articles with wear-resistant coatings and methods for applying the coatings onto the articles | MADHAVA, MURALI N. |
| 11013218 | Not Issued | 71 | 12/14/2004 | Method for applying environmental-resistant MCrAlY coatings on gas turbine components | MADHAVA, MURALI N. |
| 11027152 | Not Issued | 30 | 12/29/2004 | Low cost innovative diffused MCrAlY coatings | MADHAVA, MURALI N. |
| 11044873 | Not | 30 | 01/26/2005 | High strength amorphous and | MADHAVA, |

| | | | | | |
|-----------------|------------|----|------------|-------------------------------------------------------------------------------------------------------------|--------------------|
| | Issued | | | microcrystalline structures and coatings | MURALI N. |
| <u>11093334</u> | Not Issued | 30 | 03/29/2005 | Environment-resistant platinum aluminide coatings, and methods of applying the same onto turbine components | MADHAVA, MURALI N. |
| <u>11114470</u> | Not Issued | 20 | 04/25/2005 | Magnesium repair and build up | MADHAVA, MURALI N. |

Inventor Search Completed: No Records to Display.

| | | | |
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| | <input type="text" value="Madhava"/> | <input type="text" value="Murali"/> | |

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